

TMDL Calculations for San Diego Creek - Existing Loads

Station	Species	Date	Chlordane	Total DDT	Dieldrin	Total PCB	Toxaphene
San Diego Creek/Michelson	Red Shiner	6/9/1998	8.1	203.5	5.7	ND	83.0
Peters Canyon Channel	Red Shiner	6/9/1998	54.8	2168.2	12.5	79.4	330.0
San Diego Creek/Barranca Pkwy	Red Shiner	6/9/1998	13.8	458.2	3.2	60.7	91.6
Geometric Mean			18.297	586.912	6.109	69.423	135.882

Flow	Duration	Flow*
Tier	(days)	(cfs)
Base & Low	352	15
Medium	10	365
High	3	1595

	Bioconcentration Factor	Dissolved Concentration (C_w)	Dissolved Fraction	Dissolved Fraction	Dissolved Fraction
	(BCF)	($\mu\text{g/L}$)	$(f_d) - \text{Low Flow}$	$(f_d) - \text{Medium Flow}$	$(f_d) - \text{High Flow}$
Total DDT	363,000	0.0016	0.2551	0.0188	0.0066
Chlordane	37,800	0.0005	0.3894	0.0344	0.0122
Dieldrin	2,993	0.0020	0.8352	0.2207	0.0891
Toxaphene	52,000	0.0026	0.8046	0.1872	0.0736
Total PCBs	270,000	0.0003	0.4227	0.0393	0.0139

	Existing Load (g/yr)	Existing Load (g/yr)	Existing Load (g/yr)	Total Existing Load (g/yr)
	Low Flow	Medium Flow	High Flow	
Total DDT	81.8	768.2	2880.9	3731.0
Chlordane	16.1	125.5	465.8	607.4
Dieldrin	31.6	82.6	268.2	382.3
Toxaphene	41.9	124.7	415.3	581.9
Total PCBs	7.9	58.4	215.9	282.1

1. Calculate geometric mean of pollutant tissue concentrations in red shiner analyzed through TSMP in 1998.
2. Using EPA's identified BCFs, calculate the estimated dissolved concentration in water (C_w): $C_w = \text{Tissue Concentration } (\mu\text{g/kg}) / \text{BCF } (\text{L/kg})$
3. Using calculated C_w , divide by dissolved fraction (f_d), to determine total water column concentration; apply same calculations as with loading capacity to determine total existing loads.